



STEVEN L. BESHEAR  
GOVERNOR

ENERGY AND ENVIRONMENT CABINET  
DEPARTMENT FOR ENVIRONMENTAL PROTECTION  
DIVISION OF WATER  
200 FAIR OAKS LANE  
FRANKFORT, KENTUCKY 40601  
[www.kentucky.gov](http://www.kentucky.gov)

LEONARD K. PETERS  
SECRETARY

**FACT SHEET**

**KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM  
PERMIT TO DISCHARGE TREATED WASTEWATER  
INTO WATERS OF THE COMMONWEALTH**

KPDES No.: KY0002747  
AI No.: 44199

Permit Writer: Sara Beard

Date: April 23, 2009

**1. SYNOPSIS OF APPLICATION**

a. Name and Address of Applicant

Southwire Company Kentucky Plant  
1987 State Route 271 North  
Hawesville, Kentucky 42348

b. Facility Location

Southwire Company Kentucky Plant  
1987 State Route 271 North  
Hawesville, Hancock County, Kentucky

c. Description of Applicant's Operation

Southwire Company operations an aluminum rod and electrical utility cable manufacturing facility (SIC Code 3355)

d. Production Capacity of Facility

1,213,777 lbs/day - Rolling with Emulsions (1,165,153 lbs/day from the rod mills and 48,624 lbs/day from the strip mills)

192,868 lbs/day - Drawing with Neat Oils (cable mills)

e. Description of Existing Pollution Abatement Facilities

Outfall 001 - Combined contact and non-contact cooling water (from Internal Outfall 002) and storm water runoff.

Outfall 002 - Combined contact and non-contact cooling water (Internal Outfall to 001).

1. **SYNOPSIS OF APPLICATION - continued**

f. Permitting Action

This permitting action involves a reissuance of a minor KPDES permit for an existing source aluminum production facility.

2. **RECEIVING WATERS**

a. Receiving Water Name

Outfall 001 discharges to the Ohio River at mile point 727.

Outfall 002 is an internal outfall to 001.

b. Stream Segment Use Classifications

The receiving waters are classified as Warmwater Aquatic Habitat, Primary Contact Recreation, Secondary Contact Recreation, and Domestic Water Supply.

c. Stream Segment Antidegradation Categorization

This segment of the Ohio River is listed as impaired on the 2008 303(d) List of Waters For Kentucky. Impairments include nonsupport of primary contact recreation and partial support of fish consumption. The pollutants of concern are Dioxins (including 2,3,7,8-TCDD), Polychlorinated Biphenyls, and Fecal Coliform. Suspected sources are On-site Treatment Systems (septic systems and similar decentralized systems), Unspecified Urban Stormwater, Agriculture, Combined Sewer Overflows, and Unknown Sources. A properly operating wastewater treatment plant should not cause or contribute to these impairment.

d. Stream Low Flow Condition

At the point of discharge, the 7Q10 and the Harmonic Mean for the Ohio River are 13,000 and 77,330 cfs, respectively.

### 3. REPORTED DISCHARGE AND PROPOSED LIMITS

Description of Discharge - Outfall 001 - Combined contact and non-contact cooling water (from Internal Outfall 002) and storm water runoff.

| Effluent Characteristics              | Reported Discharge |               | Proposed Limits |               | Applicable Water Quality Criteria and/or Effluent Guidelines |
|---------------------------------------|--------------------|---------------|-----------------|---------------|--|
|                                       | Monthly Average    | Daily Maximum | Monthly Average | Daily Maximum |  |
| Flow (MGD)                            | 0.093              | 0.141         | Report          | Report        | 401 KAR 5:065, Section 2(8)                                  |
| Precipitation (inches)                | 0.84               | 1.31          | Report          | Report        | 401 KAR 5:065, Section 2(8)                                  |
| Hardness (as mg/l CaCO <sub>3</sub> ) | 222                | 224           | Report          | Report        | 401 KAR 5:065, Section 2(8)                                  |
| Total Suspended Solids (mg/l)         | 16.1               | 17.9          | 30              | 60            | 401 KAR 5:080, Section 1(2)(c)2                              |
| Oil & Grease (mg/l)                   | 4.3                | 4.9           | 10              | 15            | 401 KAR 5:080, Section 1(2)(c)2                              |
| Total Recoverable Metals (mg/l)       | 2.36               | 2.36          | Report          | Report        | 401 KAR 5:065, Section 2(8)                                  |
| pH (standard units)                   | 6.2(min)           | 8.7(max)      | 6.0(min)        | 9.0(max)      | 401 KAR 10:031, Section 4                                    |

The data contained under the reported discharge columns is from the analysis of the Discharge Monitoring Reports (DMRs) data that has been reported during the term of the current permit.

The term Total Recoverable Metals means those metals listed on Form C, Section V, Part C - Metals, Cyanide, and Total Phenols: Antimony, Arsenic, Beryllium, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Silver, Thallium, and Zinc.

**4. METHODOLOGY USED IN DETERMINING LIMITATIONS**

## a. Serial Number

Outfall 001 - Combined contact and non-contact cooling water (from Internal Outfall 002) and storm water runoff.

## b. Effluent Characteristics

|                         |               |          |
|-------------------------|---------------|----------|
| Flow                    | Precipitation | Hardness |
| Total Suspended Solids  | Oil & Grease  | pH       |
| Total Recoverable Metal |               |          |

## c. Pertinent Factors

On September 8, 2004 Kentucky's revised water quality standards, 401 KAR 10:031 became effective.

## d. Monitoring Requirements

Flow shall be monitored instantaneously once per month.

Precipitation, Hardness, Total Suspended Solids, Oil & Grease, and pH shall be monitored once per month by grab sample. When reporting the precipitation amounts for this outfall, the permittee shall report the volume of precipitation which produced the discharge.

Total Recoverable Metals shall be monitored once per quarter by grab sample. The results of the analyses shall be total and reported as a single concentration on the DMR. The laboratory bench sheets showing the results for each metal shall be attached to the DMR.

## e. Justification of Limits

The Kentucky Administrative Regulations (KARs) cited below have been duly promulgated pursuant to the requirements of Chapter 224 of the Kentucky Revised Statutes (KRSs).

Flow, Precipitation, Hardness, and Total Recoverable Metals

The monitoring requirements for these parameters are consistent with the requirements of 401 KAR 5:065, Section 2(8).

Oil & Grease and Total Suspended Solids

The limits for these parameters are consistent with the requirements of 401 KAR 5:080, Section 1(2)(c)2. These limits are representative of the Division of Water's Best Professional Judgment (BPJ) determination of "Best Conventional Pollutant Control Technology" (BCT) requirements for these pollutants.

pH

The limits for this parameter are consistent with the requirements of 401 KAR 10:031, Section 4 (Kentucky Water Quality Standards).

**5. REPORTED DISCHARGE AND PROPOSED LIMITS**

Description of Discharge - Outfall 002 - Combined contact and non-contact cooling water (Internal Outfall to 001).

| Effluent Characteristics            | Reported Discharge |               | Proposed Limits |               | Applicable Water Quality Criteria and/or Effluent Guidelines   |
|-------------------------------------|--------------------|---------------|-----------------|---------------|--|
|                                     | Monthly Average    | Daily Maximum | Monthly Average | Daily Maximum |  |
| Flow (MGD)                          | 0.033              | 0.099         | Report          | Report        | 401 KAR 5:065, Section 2(8)                                    |
| Temperature (°F)                    | 70.6               | 70.6          | 95              | 100           | 401 KAR 10:031, Section 4(1)<br>401 KAR 5:080, Section 1(2)(c) |
| Total Recoverable Chromium(lbs/day) | 0.010              | 0.010         | 0.038           | 0.090         | 401 KAR 5:065, Sections 4 and 5                                |
| Total Cyanide (lbs/day)             | 0.007              | 0.007         | 0.025           | 0.060         | 401 KAR 5:065, Sections 4 and 5                                |
| Total Recoverable Zinc (lbs/day)    | 0.047              | 0.047         | 0.12            | 0.30          | 401 KAR 5:065, Sections 4 and 5                                |
| Total Recoverable Aluminum(lbs/day) | 0.160              | 0.160         | 0.66            | 1.32          | 401 KAR 5:065, Sections 4 and 5                                |
| Oil & Grease (lbs/day)              | 2.20               | 2.20          | 5.61            | 9.35          | 401 KAR 5:065, Sections 4 and 5                                |
| Total Suspended Solids (lbs/day)    | 7.63               | 7.63          | 9.11            | 19.18         | 401 KAR 5:065, Sections 4 and 5                                |
| pH (standard units)                 | 7.0(min)           | 8.6(max)      | 7.0(min)        | 10.0(max)     | 401 KAR 5:065, Sections 4 and 5                                |

The data contained under the reported discharge columns is from the analysis of the Discharge Monitoring Reports (DMRs) data that has been reported during the term of the current permit.

6 **METHODOLOGY USED IN DETERMINING LIMITATIONS**

a. Serial Number

Outfall 002 - Combined contact and non-contact cooling water (Internal Outfall to 001)

b. Effluent Characteristics

|                            |                        |
|----------------------------|------------------------|
| Flow                       | Temperature            |
| Total Recoverable Chromium | Total Cyanide          |
| Total Recoverable Aluminum | Total Recoverable Zinc |
| Oil & Grease               | Total Suspended Solids |
| pH                         |                        |

c. Pertinent Factors

Southwire Company Kentucky Plant has requested a mixing zone for their heated effluent. After review of the discharge information submitted by the permittee, the Division of Water has determined that a mixing zone for temperature will be granted.

This facility is an existing source subject to the requirements of 40 CFR 467 - Aluminum Forming Point Source Category. The specific requirements include the "Best Practicable Technology Currently Available" (BPT - 467.22 and 467.52) and the "Best Available Technology Economically Achievable" (BAT - 423.23 and 467.53) in the Rolling With Emulsions and Drawing With Neat Oils Subcategories.

A summarization of the effluent guidelines, water quality standards, assumptions, and calculations can be found in Fact Sheet Attachment A - Regulatory Requirements. and Fact Sheet Attachment B - CORMIX Diffuser Model for Thermal Discharge

d. Monitoring Requirements

Flow shall be monitored instantaneously once per month.

Temperature, Total Recoverable Chromium, Total Cyanide, Total Recoverable Aluminum, Total Recoverable Zinc, Oil & Grease, Total Suspended Solids, and pH shall be monitored once per month by grab sample.

e. Justification of Limits

The Kentucky Administrative Regulations (KARs) cited below have been duly promulgated pursuant to the requirements of Chapter 224 of the Kentucky Revised Statutes (KRSs).

Internal Monitoring Point

Section 3(8) of 401 KAR 5:065 authorizes the establishment of internal monitoring points to insure compliance with applicable treatment requirements when commingling with other wastestreams will prevent measuring compliance.

Flow

The monitoring requirements for this parameter are consistent with the requirements of 401 KAR 5:065, Section 2(8).

**6. METHODOLOGY USED IN DETERMINING LIMITATIONS****e. Justification of Limits**Temperature

The limits for this parameter are consistent with the requirements of 401 KAR 10:031, Section 4 and 401 KAR 5:080, Section 1(2)(c). These limits are representative of the Division of Water's Best Professional Judgment (BPJ) determination of BPT and BAT requirements for the control of thermal impacts from cooling water discharges. The basis of this determination was a review of historic DMR data and the study of the effects of the thermal discharge to the Ohio River.

Total Recoverable Chromium, Total Cyanide, Total Recoverable Zinc, Total Recoverable Aluminum, and pH

The limits for these parameters are consistent with the requirements of 401 KAR 5:065, Sections 4 and 5. These limits are representative of the BPT and BAT requirements for the Rolling with Emulsions (467.22 and 467.23) and Drawing with Neat Oils (467.52 and 467.53) subcategories.

Total Suspended Solids and Oil & Grease

The limits for these parameters are consistent with the requirements of 401 KAR 5:065, Sections 4 and 5. These limits are representative of the BPT requirements for the Rolling with Emulsions (467.22) and Drawing with Neat Oils (467.52) subcategories.

**7. ANTIDegradation**

The development of this permit commenced prior to the April 12, 2005 EPA approval of Kentucky's Antidegradation Regulation promulgated on September 8, 2004. Therefore, previous antidegradation requirements are applicable. The conditions of 401 KAR 10:029, Section 1 have been satisfied by this permit action. A review under 401 KAR 10:030 Section 1 is not applicable.

**8. PROPOSED COMPLIANCE SCHEDULE FOR ATTAINING EFFLUENT LIMITATIONS**

Permittee shall comply with the effluent limitations by the effective date of the permit.

**9. PROPOSED SPECIAL CONDITIONS WHICH WILL HAVE A SIGNIFICANT IMPACT ON THE DISCHARGE**Cooling Water Additives, FIFRA, and Mollusk Control

The discharge of any product registered under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) in cooling water which ultimately may be released to the waters of the Commonwealth is prohibited, except Herbicides, unless specifically identified and authorized by the KPDES permit. In the event the permittee needs to use a biocide or chemical not previously reported for mollusk control or other purpose, the permittee shall submit sufficient information, a minimum of thirty (30) days prior to the commencement of use of said biocides or chemicals, to the Division of Water for review and establishment of appropriate control parameters. Such information requirements shall include:

1. Name and general composition of biocide or chemical,
2. Any and all aquatic organism toxicity data,
3. Quantities to be used,
4. Frequencies of use,
5. Proposed discharge concentrations, and
6. EPA registration number, if applicable.

10. **PROPOSED SPECIAL CONDITIONS WHICH WILL HAVE A SIGNIFICANT IMPACT ON THE DISCHARGE - continued**

Best Management Practices (BMP) Plan

Pursuant to 401 KAR 5:065, Section 2(10), a BMP requirement shall be included: to control or abate the discharge of pollutants from ancillary areas containing toxic or hazardous substances or those substances which could result in an environmental emergency; where numeric effluent limitations are infeasible; or to carry out the purposes and intent of KRS 224. The facility has several areas where support activities occur which have a potential of the discharge of such substances through storm water runoff or spillage. Some of these areas will drain to present wastewater treatment plants, others will not.

Outfall Signage

As a member of ORSANCO (Ohio River Valley Sanitation Commission) the Commonwealth of Kentucky through the Division of Water implements a requirement that the permittee post a permanent marker at each discharge point to the Ohio River. It is the Best Professional Judgment of the Division of Water, 401 KAR 5:080, Section 1(2)(c)2, that all permittees post a marker at all discharge locations and/or monitoring points. The ORSANCO requirements for the marker specify it to be at least 2 feet by 2 feet in size and a minimum of 3 feet above ground level with the Permittee Name and KPDES permit and outfall numbers in 2 inch letters. For internal monitoring points the marker shall be of sufficient size to include the outfall number in 2 inch letters and is to be posted as near as possible to the actual sampling location.

Mixing Zone

Soutwire has requested a mixing zone of one third (1/3) of the width of the Ohio River in the vicinity of the proposed discharge. Pursuant to the requirements of 401 KAR 10:029, Section 4(6) an assigned mixing zone cannot exceed 1/3 of the width of the receiving water body in any spatial direction. At the proposed point of discharge the width of the Ohio River is 2,200 feet therefore an assigned mixing zone for this discharge can not exceed 733 feet in any spatial direction. In accordance with the requirements of 401 KAR 10:029, Section 4 (1) the mixing zone shall have the following dimensions:

|  |                            |
|--|----------------------------|
| Linear Distance from Point of Discharge: | 51.2 feet in any direction |
| Maximum Surface Area Involved:           | 2,058 square feet          |
| Volume of Receiving Water                | 1,300 cfs (840 MGD)        |

11. **PERMIT DURATION**

Five (5) years. This facility is in the Tradewater/Green Basin Management Unit as per the Kentucky Watershed Management Framework.

12. **PERMIT INFORMATION**

The application, draft permit fact sheet, public notice, comments received and additional information is available by writing the Division of Water at 200 Fair Oaks Lane, Frankfort, Kentucky 40601.

13. **REFERENCES AND CITED DOCUMENTS**

All material and documents referenced or cited in this fact sheet are, a part of the permit information as described above and are readily available at the Division of Water Central Office. Information regarding these materials may be obtained from the person listed below.



**14. CONTACT**

For further information contact the individual identified on the Public Notice or the Permit Writer - Sara Beard at (502) 564-3410, extension 4925 or e-mail Sara.Beard@ky.gov.

**15. PUBLIC NOTICE INFORMATION**

Please refer to the attached Public Notice for details regarding the procedures for a final permit decision, deadline for comments, and other information required by 401 KAR 5:075, Section 4(2)(e).

DRAFT

## ATTACHMENT A - REGULATORY REQUIREMENTS

### EFFLUENT GUIDELINES

The facility is an "Existing Source" subject to the requirements of Subparts B and E of 40 CFR Part 467 - Aluminum Forming Point Source Category. Specifically, the "Best Practicable Control Technology Currently Available" (BPT) and the "Best Available Technology Economically Achievable" (BAT) for the: Rolling With Emulsions Subcategory (40 CFR 467.22 and 467.52) and Drawing With Neat Oils Subcategory (40 CFR 467.23 and 467.53).

#### PART 467-ALUMINUM FORMING POINT SOURCE CATEGORY

##### Subpart B-Rolling With Emulsions Subcategory

##### Subsection 467.20 - Applicability; description of the rolling with emulsions subcategory.

This subpart applies to dischargers of pollutants to waters of the United States and introductions of pollutants into publicly owned treatment works from the core and the ancillary operations of the rolling with emulsions subcategory.

##### Subsection 467.21 - Specialized definitions.

For the purpose of this subpart:

(a) The "core" of the rolling with emulsions subcategory shall include rolling using emulsions, roll grinding, stationary casting, homogenizing, artificial aging, annealing, and sawing.

(b) The term "ancillary operation" shall mean any operation not previously included in the core, performed on-site, following or preceding the rolling operation. The ancillary operations shall include direct chill casting, solution heat treatment, cleaning or etching, and degassing.

##### Subsection 467.22 - Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

##### Core

| Pollutant or pollutant property | BPT effluent limitations                             |                             |
|---------------------------------|--|-----------------------------|
|                                 | Maximum for any 1 day                                | Maximum for monthly average |
|                                 | lb/million off-lbs of aluminum rolled with emulsions |                             |
| Chromium                        | 0.057  | 0.024                       |
| Cyanide                         | 0.038  | 0.016                       |
| Zinc                            | 0.19   | 0.079                       |
| Aluminum                        | 0.84   | 0.416                       |
| Oil and grease                  | 2.60   | 1.56                        |
| Suspended solids                | 5.33   | 2.53                        |
| pH                              | Within the range of 7.0 to 10.0 at all times         |                             |

**EFFLUENT GUIDELINES - continued**

**Subsection 467.23 - Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.**

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable. The discharge of process wastewater pollutants from the core shall not exceed the values set forth below:

*Core*

| Pollutant or pollutant property | BAT effluent limitations                             |                             |
|---------------------------------|--|-----------------------------|
|                                 | Maximum for any 1 day                                | Maximum for monthly average |
|                                 | lb/million off-lbs of aluminum rolled with emulsions |                             |
| Chromium                        | 0.057  | 0.024                       |
| Cyanide                         | 0.038  | 0.016                       |
| Zinc                            | 0.19   | 0.079                       |
| Aluminum                        | 0.84   | 0.42                        |

**Subpart E—Drawing With Neat Oils Subcategory**

**Subsection 467.50 - Applicability; description of the drawing with neat oils subcategory.**

This subpart applies to discharges of pollutants to waters of the United States and introductions of pollutants into publicly owned treatment works from the core of the drawing with neat oils subcategory and the ancillary operations.

**Subsection 467.51 - Specialized definitions.**

For the purpose of this subpart:

(a) The "core" of the drawing with neat oils subcategory shall include drawing using neat oils, stationary casting, artificial aging, annealing, degreasing, sawing, and swaging.

(b) The term "ancillary operation" shall mean any operation not previously included in the core, performed on-site, following or preceding the drawing operation. The ancillary operation shall include continuous rod casting, solution heat treatment, and cleaning or etching.

**Subsection 467.52 - Effluent limitations representing the degree of effluent reduction attainable by the application of best practicable control technology currently available.**

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable technology currently available:

**EFFLUENT GUIDELINES - continued**

*Core*

| Pollutant or pollutant property | BPT effluent limitations                                |                             |
|---------------------------------|---|-----------------------------|
|                                 | Maximum for any 1 day                                   | Maximum for monthly average |
|                                 | lb/per million off-lbs of aluminum drawn with neat oils |                             |
| Chromium                        | 0.022   | 0.0090                      |
| Cyanide                         | 0.015   | 0.0050                      |
| Zinc                            | 0.073   | 0.031                       |
| Aluminum                        | 0.32  | 0.160                       |
| Oil and grease                  | 0.97  | 0.598                       |
| Suspended solids                | 2.04  | 0.972                       |
| pH                              | Within the range of 7.0 to 10.0 at all times            |                             |

*Continuous Rod Casting Spent Lubricant*

| Pollutant or pollutant property | BPT effluent limitations                     |                             |
|---------------------------------|--|-----------------------------|
|                                 | Maximum for any 1 day                        | Maximum for monthly average |
|                                 | lb/per million off-lbs of aluminum rod cast  |                             |
| Chromium                        | 0.00086                                      | 0.00035                     |
| Cyanide                         | 0.00057                                      | 0.00024                     |
| Zinc                            | 0.00287                                      | 0.0012                      |
| Aluminum                        | 0.0127                                       | 0.0063                      |
| Oil and grease                  | 0.0393                                       | 0.0236                      |
| Suspended solids                | 0.0805                                       | 0.0383                      |
| pH                              | Within the range of 7.0 to 10.0 at all times |                             |

*Continuous Rod Casting Contact Cooling Water*

| Pollutant or pollutant property | BPT effluent limitations                     |                             |
|---------------------------------|--|-----------------------------|
|                                 | Maximum for any 1 day                        | Maximum for monthly average |
|                                 | lb/million off-lbs of aluminum rod cast      |                             |
| Chromium                        | 0.684  | 0.28                        |
| Cyanide                         | 0.451  | 0.187                       |
| Zinc                            | 2.271  | 0.949                       |
| Aluminum                        | 10.00  | 4.976                       |
| Oil and grease                  | 31.10  | 18.66                       |
| Suspended solids                | 63.76  | 30.322                      |
| pH                              | Within the range of 7.0 to 10.0 at all times |                             |

**EFFLUENT GUIDELINES - continued**

**Subsection 467.53 - Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.**

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable. The discharge of wastewater pollutants from the core and ancillary operations shall not exceed the values set forth below:

*Core*

| Pollutant or pollutant property | BAT effluent limitations                            |                             |
|---------------------------------|---|-----------------------------|
|                                 | Maximum for any 1 day                               | Maximum for monthly average |
|                                 | lb/million off-lbs of aluminum drawn with neat oils |                             |
| Chromium                        | 0.022   | 0.009                       |
| Cyanide                         | 0.015   | 0.006                       |
| Zinc                            | 0.073   | 0.031                       |
| Aluminum                        | 0.321   | 0.16                        |

*Continuous Rod Casting Spent Lubricant*

| Pollutant or pollutant property | BAT effluent limitations                |                             |
|---------------------------------|---|-----------------------------|
|                                 | Maximum for any 1 day                   | Maximum for monthly average |
|                                 | lb/million off-lbs of aluminum rod cast |                             |
| Chromium                        | 0.00086                                 | 0.0004                      |
| Cyanide                         | 0.0006                                  | 0.0002                      |
| Zinc                            | 0.0029                                  | 0.0012                      |
| Aluminum                        | 0.0127                                  | 0.0063                      |

*Continuous Rod Casting Contact Cooling Water*

| Pollutant or pollutant property | BAT effluent limitations                |                             |
|---------------------------------|---|-----------------------------|
|                                 | Maximum for any 1 day                   | Maximum for monthly average |
|                                 | lb/million off-lbs of aluminum rod cast |                             |
| Chromium                        | 0.086                                   | 0.035                       |
| Cyanide                         | 0.056                                   | 0.024                       |
| Zinc                            | 0.283                                   | 0.118                       |
| Aluminum                        | 1.247                                   | 0.621                       |

**EFFLUENT GUIDELINES - continued**

**LIMITS CALCULATIONS**

The final effluent limitations required by the effluent guidelines are a summation of the component contributions, i.e. the summation of the requirements of Subparts B and E.

The following formulas were used to calculate the contribution from each source:

$$\text{Monthly Average} = \sum \left[ \left( \text{Production Rate (10}^6 \text{ lbs/day)} \right) \times \left( \text{Monthly Average Factor (lbs/10}^6 \text{ lbs of product)} \right) \right]$$

$$\text{Daily Maximum} = \sum \left[ \left( \text{Production Rate (10}^6 \text{ lbs/day)} \right) \times \left( \text{Daily Maximum Factor (lbs/10}^6 \text{ lbs of product)} \right) \right]$$

Substituting the production rates for each process and the appropriate factors, presented in the Regulatory Requirements - Effluent Guidelines section of this Attachment, the contributions from each process are determined. The following tables are a summarization of these calculations.

**LIMITS CALCULATIONS - EFFLUENT GUIDELINES**

| Operation                     | Rolling with Emulsions - Core |              | Drawing with Neat Oils - Core |                | Drawing with Neat Oils - Continuous Rod Casting Spent Lubricant |                | Drawing with Neat Oils - Continuous Rod Casting Contact Cooling Water |                | Total (lbs/day) |
|-------------------------------|-------------------------------|--------------|-------------------------------|----------------|---|----------------|---|----------------|-----------------|
|                               | BPT                           | BAT          | BPT                           | BAT            | BPT   | BAT            | BPT   | BAT            |                 |
| <b>Chromium</b>               |                               |              |                               |                |   |                |   |                |                 |
| Maximum                       | 0.069                         | <b>0.069</b> | 0.00424                       | <b>0.00424</b> | 0.00017   | <b>0.00017</b> | 0.1126  | <b>0.01659</b> | 0.0902          |
| Average                       | 0.029                         | <b>0.029</b> | 0.00174                       | <b>0.00174</b> | 0.00007   | 0.00008        | 0.0540  | <b>0.00675</b> | 0.0377          |
| <b>Cyanide</b>                |                               |              |                               |                |   |                |   |                |                 |
| Maximum                       | 0.046                         | <b>0.046</b> | 0.00289                       | <b>0.00289</b> | 0.00011   | 0.00012        | 0.0870  | <b>0.01080</b> | 0.0599          |
| Average                       | 0.019                         | <b>0.019</b> | 0.00096                       | 0.00116        | 0.00005   | <b>0.00004</b> | 0.0361  | <b>0.00463</b> | 0.0251          |
| <b>Zinc</b>                   |                               |              |                               |                |   |                |   |                |                 |
| Maximum                       | 0.231                         | <b>0.231</b> | 0.01408                       | <b>0.01408</b> | 0.00055   | 0.00056        | 0.4380  | <b>0.05458</b> | 0.2998          |
| Average                       | 0.096                         | <b>0.096</b> | 0.00598                       | <b>0.00598</b> | 0.00023   | <b>0.00023</b> | 0.1830  | <b>0.02276</b> | 0.1249          |
| <b>Aluminum</b>               |                               |              |                               |                |   |                |   |                |                 |
| Maximum                       | 1.020                         | <b>1.020</b> | 0.0617                        | 0.0619         | 0.00245   | <b>0.00245</b> | 1.929   | <b>0.2405</b>  | 1.3242          |
| Average                       | 0.505                         | <b>0.505</b> | 0.0309                        | <b>0.0309</b>  | 0.00122   | <b>0.00122</b> | 0.960   | <b>0.1198</b>  | 0.6568          |
| <b>Oil &amp; Grease</b>       |                               |              |                               |                |   |                |   |                |                 |
| Maximum                       | 3.156                         | N/A          | 0.1871                        | N/A            | 0.00758   | N/A            | 5.998   | N/A            | 9.3487          |
| Average                       | 1.893                         | N/A          | 0.1153                        | N/A            | 0.00455   | N/A            | 3.599   | N/A            | 5.6123          |
| <b>Total Suspended Solids</b> |                               |              |                               |                |   |                |   |                |                 |
| Maximum                       | 6.469                         | N/A          | 0.393                         | N/A            | 0.0155  | N/A            | 12.297  | N/A            | 19.1757         |
| Average                       | 3.071                         | N/A          | 0.187                         | N/A            | 0.0074  | N/A            | 5.848   | N/A            | 9.1139          |

ORIGIN is located at the WATER SURFACE and at center of discharge  
channel/outlet: 0.00 m from the LEFT bank/shore.  
X-axis points downstream PERMIT No.: KY0002747

Y-axis points to left as seen by an observer looking downstream  
Z-axis points vertically upward (in CORMIX3, all values Z = 0.00)  
NSTEP = 50 display intervals per module

NOTE on dilution/concentration values for this HEATED DISCHARGE (IPOLL=3):

S = hydrodynamic dilutions, include buoyancy (heat) loss effects  
C = corresponding temperature values (always in "degC"),  
include heat loss

-----  
BEGIN MOD301: DISCHARGE MODULE

Efflux conditions:

| X    | Y    | Z    | S   | C         | BV   | BH   |
|------|------|------|-----|-----------|------|------|
| 0.00 | 0.00 | 0.00 | 1.0 | 0.128E+02 | 0.15 | 1.52 |

END OF MOD301: DISCHARGE MODULE  
-----

BEGIN MOD302: ZONE OF FLOW ESTABLISHMENT

Control volume inflow:

| X    | Y    | Z    | S   | C         | BV   | BH   |
|------|------|------|-----|-----------|------|------|
| 0.00 | 0.00 | 0.00 | 1.0 | 0.128E+02 | 0.15 | 1.52 |

Profile definitions:

BV = Gaussian 1/e (37%) vertical thickness  
BH = Gaussian 1/e (37%) horizontal half-width, normal to trajectory  
S = hydrodynamic centerline dilution  
C = centerline concentration (includes reaction effects, if any)

Control volume outflow:

| X    | Y     | Z    | S   | C         | BV   | BH   |
|------|-------|------|-----|-----------|------|------|
| 0.27 | -0.46 | 0.00 | 1.0 | 0.128E+02 | 0.16 | 1.48 |

SIGMAE= 282.62

Cumulative travel time = 21.7172 sec

END OF MOD302: ZONE OF FLOW ESTABLISHMENT  
-----

BEGIN CORSURF (MOD310): BUOYANT SURFACE JET - NEAR-FIELD REGION

Surface jet in deep crossflow with shoreline-attachment.

Profile definitions:

BV = Gaussian 1/e (37%) vertical thickness  
BH = Gaussian 1/e (37%) horizontal half-width, normal to trajectory  
S = hydrodynamic centerline dilution  
C = centerline concentration (includes reaction effects, if any)

| X    | Y     | Z    | S   | C         | BV   | BH   |
|------|-------|------|-----|-----------|------|------|
| 0.27 | -0.46 | 0.00 | 1.0 | 0.128E+02 | 0.16 | 1.48 |

JET REGION is INSIGNIFICANT in its spatial extent!

|      |       |      |     |           |      |      |
|------|-------|------|-----|-----------|------|------|
| 0.27 | -0.46 | 0.00 | 1.0 | 0.128E+02 | 0.22 | 2.01 |
|------|-------|------|-----|-----------|------|------|

Buoyant jet regime ends with local CRITICAL CONDITIONS.

Cumulative travel time = 21.7172 sec

END OF CORSURF (MOD310): BUOYANT SURFACE JET - NEAR-FIELD REGION  
-----

-----  
\*\* End of NEAR-FIELD REGION (NFR) \*\*PERMIT No.: KY0002747



-----  
The initial plume WIDTH/THICKNESS VALUE in the next far-field module will be  
CORRECTED by a factor 0.50 to conserve the mass flux in the far-field!

Some bank/shore interaction occurs at end of near-field.

In the next prediction module, the jet/plume centerline will be set  
to follow the bank/shore.

-----  
BEGIN MOD341: BUOYANT AMBIENT SPREADING

Plume is ATTACHED to LEFT bank/shore.

Plume width is now determined from LEFT bank/shore.

Profile definitions:

BV = top-hat thickness, measured vertically

BH = top-hat half-width, measured horizontally from bank/shoreline

S = hydrodynamic average (bulk) dilution

C = average (bulk) concentration (includes reaction effects, if any)

Plume Stage 2 (bank attached):

| X     | Y    | Z    | S   | C         | BV   | BH   |
|-------|------|------|-----|-----------|------|------|
| 0.27  | 0.00 | 0.00 | 1.0 | 0.128E+02 | 0.11 | 2.03 |
| 3.68  | 0.00 | 0.00 | 1.1 | 0.112E+02 | 0.11 | 2.41 |
| 7.09  | 0.00 | 0.00 | 1.3 | 0.972E+01 | 0.11 | 2.77 |
| 10.49 | 0.00 | 0.00 | 1.5 | 0.838E+01 | 0.11 | 3.10 |
| 13.90 | 0.00 | 0.00 | 1.8 | 0.721E+01 | 0.11 | 3.42 |

\*\* WATER QUALITY STANDARD OR CCC HAS BEEN FOUND \*\*

The pollutant concentration in the plume falls below water quality standard  
or CCC value of 0.670E+01 in the current prediction interval.

This is the spatial extent of concentrations exceeding the water quality  
standard or CCC value.

|        |      |      |      |           |      |      |
|--------|------|------|------|-----------|------|------|
| 17.30  | 0.00 | 0.00 | 2.1  | 0.619E+01 | 0.12 | 3.73 |
| 20.71  | 0.00 | 0.00 | 2.4  | 0.532E+01 | 0.13 | 4.02 |
| 24.12  | 0.00 | 0.00 | 2.8  | 0.459E+01 | 0.14 | 4.30 |
| 27.52  | 0.00 | 0.00 | 3.2  | 0.397E+01 | 0.16 | 4.57 |
| 30.93  | 0.00 | 0.00 | 3.7  | 0.345E+01 | 0.17 | 4.83 |
| 34.33  | 0.00 | 0.00 | 4.2  | 0.302E+01 | 0.18 | 5.09 |
| 37.74  | 0.00 | 0.00 | 4.8  | 0.265E+01 | 0.20 | 5.34 |
| 41.14  | 0.00 | 0.00 | 5.5  | 0.234E+01 | 0.22 | 5.58 |
| 44.55  | 0.00 | 0.00 | 6.2  | 0.207E+01 | 0.24 | 5.82 |
| 47.96  | 0.00 | 0.00 | 6.9  | 0.184E+01 | 0.25 | 6.06 |
| 51.36  | 0.00 | 0.00 | 7.8  | 0.165E+01 | 0.27 | 6.29 |
| 54.77  | 0.00 | 0.00 | 8.7  | 0.148E+01 | 0.29 | 6.51 |
| 58.17  | 0.00 | 0.00 | 9.6  | 0.133E+01 | 0.32 | 6.74 |
| 61.58  | 0.00 | 0.00 | 10.6 | 0.121E+01 | 0.34 | 6.95 |
| 64.99  | 0.00 | 0.00 | 11.7 | 0.110E+01 | 0.36 | 7.17 |
| 68.39  | 0.00 | 0.00 | 12.8 | 0.998E+00 | 0.38 | 7.38 |
| 71.80  | 0.00 | 0.00 | 14.0 | 0.912E+00 | 0.41 | 7.59 |
| 75.20  | 0.00 | 0.00 | 15.3 | 0.836E+00 | 0.43 | 7.80 |
| 78.61  | 0.00 | 0.00 | 16.6 | 0.769E+00 | 0.46 | 8.00 |
| 82.02  | 0.00 | 0.00 | 18.1 | 0.709E+00 | 0.49 | 8.20 |
| 85.42  | 0.00 | 0.00 | 19.5 | 0.655E+00 | 0.52 | 8.40 |
| 88.83  | 0.00 | 0.00 | 21.1 | 0.607E+00 | 0.54 | 8.60 |
| 92.23  | 0.00 | 0.00 | 22.7 | 0.563E+00 | 0.57 | 8.79 |
| 95.64  | 0.00 | 0.00 | 24.4 | 0.524E+00 | 0.60 | 8.98 |
| 99.05  | 0.00 | 0.00 | 26.2 | 0.489E+00 | 0.63 | 9.17 |
| 102.45 | 0.00 | 0.00 | 28.0 | 0.457E+00 | 0.66 | 9.36 |
| 105.86 | 0.00 | 0.00 | 29.9 | 0.427E+00 | 0.70 | 9.54 |

|        |      |      |      |           |      |       |
|--------|------|------|------|-----------|------|-------|
| 109.26 | 0.00 | 0.00 | 31.9 | 0.401E+00 | 0.73 | 9.73  |
| 112.67 | 0.00 | 0.00 | 34.0 | 0.376E+00 | 0.76 | 9.91  |
| 116.08 | 0.00 | 0.00 | 36.2 | 0.354E+00 | 0.79 | 10.09 |
| 119.48 | 0.00 | 0.00 | 38.4 | 0.333E+00 | 0.83 | 10.27 |
| 122.89 | 0.00 | 0.00 | 40.7 | 0.314E+00 | 0.86 | 10.45 |
| 126.29 | 0.00 | 0.00 | 43.1 | 0.297E+00 | 0.90 | 10.62 |
| 129.70 | 0.00 | 0.00 | 45.5 | 0.281E+00 | 0.93 | 10.80 |
| 133.11 | 0.00 | 0.00 | 48.1 | 0.266E+00 | 0.97 | 10.97 |
| 136.51 | 0.00 | 0.00 | 50.7 | 0.252E+00 | 1.01 | 11.14 |
| 139.92 | 0.00 | 0.00 | 53.4 | 0.239E+00 | 1.05 | 11.32 |
| 143.32 | 0.00 | 0.00 | 56.2 | 0.227E+00 | 1.08 | 11.48 |
| 146.73 | 0.00 | 0.00 | 59.1 | 0.216E+00 | 1.12 | 11.65 |
| 150.13 | 0.00 | 0.00 | 62.1 | 0.206E+00 | 1.16 | 11.82 |
| 153.54 | 0.00 | 0.00 | 65.1 | 0.196E+00 | 1.20 | 11.99 |
| 156.95 | 0.00 | 0.00 | 68.3 | 0.187E+00 | 1.24 | 12.15 |
| 160.35 | 0.00 | 0.00 | 71.5 | 0.179E+00 | 1.29 | 12.31 |
| 163.76 | 0.00 | 0.00 | 74.8 | 0.171E+00 | 1.33 | 12.48 |
| 167.16 | 0.00 | 0.00 | 78.2 | 0.164E+00 | 1.37 | 12.64 |
| 170.57 | 0.00 | 0.00 | 81.6 | 0.157E+00 | 1.41 | 12.80 |

Cumulative travel time = 3296.5681 sec

END OF MOD341: BUOYANT AMBIENT SPREADING

BEGIN MOD361: PASSIVE AMBIENT MIXING IN UNIFORM AMBIENT

Vertical diffusivity (initial value) = 0.824E-02 m<sup>2</sup>/s  
 Horizontal diffusivity (initial value) = 0.206E-01 m<sup>2</sup>/s

Profile definitions:

BV = Gaussian s.d.\*sqrt(pi/2) (46%) thickness, measured vertically  
 = or equal to water depth, if fully mixed  
 BH = Gaussian s.d.\*sqrt(pi/2) (46%) half-width,  
 measured horizontally in Y-direction  
 S = hydrodynamic centerline dilution  
 C = centerline concentration (includes reaction effects, if any)

Plume Stage 2 (bank attached):

| X      | Y    | Z    | S    | C         | BV   | BH    |
|--------|------|------|------|-----------|------|-------|
| 170.57 | 0.00 | 0.00 | 81.6 | 0.157E+00 | 1.41 | 12.80 |

\*\* REGULATORY MIXING ZONE BOUNDARY \*\*

In this prediction interval the plume DOWNSTREAM distance meets or exceeds the regulatory value = 226.67 m.

This is the extent of the REGULATORY MIXING ZONE.

|         |      |      |        |           |       |       |
|---------|------|------|--------|-----------|-------|-------|
| 303.16  | 0.00 | 0.00 | 129.8  | 0.985E-01 | 1.59  | 18.13 |
| 435.75  | 0.00 | 0.00 | 191.7  | 0.666E-01 | 1.91  | 22.22 |
| 568.34  | 0.00 | 0.00 | 292.8  | 0.436E-01 | 2.53  | 25.66 |
| 700.92  | 0.00 | 0.00 | 480.6  | 0.266E-01 | 3.71  | 28.70 |
| 833.51  | 0.00 | 0.00 | 808.8  | 0.158E-01 | 5.70  | 31.44 |
| 966.10  | 0.00 | 0.00 | 1251.1 | 0.102E-01 | 8.16  | 33.96 |
| 1098.69 | 0.00 | 0.00 | 1736.4 | 0.734E-02 | 10.60 | 36.31 |

Plume interacts with BOTTOM.

The passive diffusion plume becomes VERTICALLY FULLY MIXED within this prediction interval.

|         |      |      |        |           |       |       |
|---------|------|------|--------|-----------|-------|-------|
| 1231.28 | 0.00 | 0.00 | 2012.8 | 0.633E-02 | 11.58 | 38.52 |
| 1363.87 | 0.00 | 0.00 | 2121.8 | 0.600E-02 | 11.58 | 40.60 |
| 1496.46 | 0.00 | 0.00 | 2225.4 | 0.572E-02 | 11.58 | 42.58 |
| 1629.05 | 0.00 | 0.00 | 2324.4 | 0.547E-02 | 11.58 | 44.48 |
| 1761.63 | 0.00 | 0.00 | 2419.4 | 0.525E-02 | 11.58 | 46.30 |
| 1894.22 | 0.00 | 0.00 | 2510.8 | 0.506E-02 | 11.58 | 48.04 |

Cumulative travel time = 130781.9531 sec

This is the REGION OF INTEREST limitation.

[illegible]

CORMIX SESSION REPORT:

XX

CORMIX MIXING ZONE EXPERT SYSTEM

CORMIX Version 5.0GT

HYDRO3:Version March,2007

SITE NAME/LABEL: Ohio River, MP 727, Hawesville

DESIGN CASE:

FILE NAME: C:\Program Files\CORMIX 5.0 TEST\MyFiles\Southwire Temp  
MZ.prd

Using subsystem CORMIX3: Buoyant Surface Discharges

Start of session: 02/26/2009--14:16:07

\*\*\*\*\*

SUMMARY OF INPUT DATA:

AMBIENT PARAMETERS:

Cross-section = bounded  
Width BS = 670.56 m  
Channel regularity ICHREG = 2  
Ambient flowrate QA = 403.78 m<sup>3</sup>/s  
Average depth HA = 11.58 m  
Depth at discharge HD = 8.11 m  
Ambient velocity UA = 0.052 m/s  
Darcy-Weisbach friction factor F = 0.0312  
Calculated from Manning's n = 0.03  
Wind velocity UW = 2 m/s  
Stratification Type STRCND = U  
Surface temperature = 12.20 degC  
Bottom temperature = 12.20 degC  
Calculated FRESH-WATER DENSITY values:  
Surface density RHOAS = 999.4763 kg/m<sup>3</sup>  
Bottom density RHOAB = 999.4763 kg/m<sup>3</sup>

DISCHARGE PARAMETERS:

Surface Discharge  
Discharge located on = left bank/shoreline  
Discharge configuration = flush discharge  
Distance from bank to outlet DISTB = 0 m  
Discharge angle SIGMA = 90 deg  
Depth near discharge outlet HD0 = 2.74 m  
Bottom slope at discharge SLOPE = 8.14 deg  
Rectangular discharge:  
Discharge cross-section area A0 = 0.464515 m<sup>2</sup>  
Discharge channel width B0 = 3.048 m  
Discharge channel depth H0 = 0.1524 m  
Discharge aspect ratio AR = 0.05  
Discharge flowrate Q0 = 0.011523 m<sup>3</sup>/s  
Discharge velocity U0 = 0.02 m/s  
Discharge temperature (freshwater) = 12.80 degC  
Corresponding density RHO0 = 999.4040 kg/m<sup>3</sup>  
Density difference DRHO = 0.0723 kg/m<sup>3</sup>  
Buoyant acceleration GP0 = 0.0007 m/s<sup>2</sup>  
Discharge concentration C0 = 12.800000 deg.C  
Surface heat exchange coeff. KS = 0.000002 m/s  
Coefficient of decay KD = 0 /s

DISCHARGE/ENVIRONMENT LENGTH SCALES:

LQ = 0.68 m Lm = 0.33 m Lbb = 0.06 m  
LM = 0.77 m

NON-DIMENSIONAL PARAMETERS:

Densimetric Froude number FR0 = 1.13 (based on LQ)

Channel densimetric Froude no. FRCH = 2.39 (based on H0)  
Velocity ratio R = 0.48

MIXING ZONE / TOXIC DILUTION ZONE / AREA OF INTEREST PARAMETERS:

Toxic discharge = no  
Water quality standard specified = yes  
Water quality standard CSTD = 6.7 deg.C  
Regulatory mixing zone = yes  
Regulatory mixing zone specification = distance  
Regulatory mixing zone value = 226.67 m (m<sup>2</sup> if area)  
Region of interest = 6800 m

HYDRODYNAMIC CLASSIFICATION:

\*-----\*  
| FLOW CLASS = SA1 |  
\*-----\*

MIXING ZONE EVALUATION (hydrodynamic and regulatory summary):

X-Y-Z Coordinate system:

Origin is located at water surface and at centerline of discharge channel:  
0 m from the left bank/shore.  
Number of display steps NSTEP = 50 per module.

NEAR-FIELD REGION (NFR) CONDITIONS :

Note: The NFR is the zone of strong initial mixing. It has no regulatory implication. However, this information may be useful for the discharge designer because the mixing in the NFR is usually sensitive to the discharge design conditions.

Pollutant concentration at NFR edge c = 12.800000 deg.C  
Dilution at edge of NFR s = 1  
NFR Location: x = 0.27 m  
(centerline coordinates) y = -0.46 m  
z = 0 m

NFR plume dimensions: half-width (bh) = 2.01 m  
thickness (bv) = 0.22 m

Cumulative travel time: 21.7172 sec.

Buoyancy assessment:

The effluent density is less than the surrounding ambient water density at the discharge level.  
Therefore, the effluent is POSITIVELY BUOYANT and will tend to rise towards the surface.

FAR-FIELD MIXING SUMMARY:

Plume becomes vertically fully mixed at 1231.28 m downstream.

PLUME BANK CONTACT SUMMARY:

Plume in bounded section contacts one bank only at 0 m downstream.

\*\*\*\*\* TOXIC DILUTION ZONE SUMMARY \*\*\*\*\*  
No TDZ was specified for this simulation.

\*\*\*\*\* REGULATORY MIXING ZONE SUMMARY \*\*\*\*\*  
The plume conditions at the boundary of the specified RMZ are as follows:

Pollutant concentration c = 0.132064 deg.C  
Corresponding dilution s = 102.0  
Plume location: x = 226.67 m  
(centerline coordinates) y = 0 m  
z = 0 m  
Plume dimensions: half-width (bh) = 15.05 m

thickness (bv) = 1.49 m  
Cumulative travel time: 4375.3711 sec.  
At this position, the plume is CONTACTING the LEFT bank.  
Furthermore, the specified water quality standard has indeed been met  
within the RMZ. In particular:  
The ambient water quality standard was encountered at the following  
plume position:  
Water quality standard = 6.7 deg.C  
Corresponding dilution s = 1.9  
Plume location: x = 15.53 m  
(centerline coordinates) y = 0 m  
z = 0 m  
Plume dimensions: half-width (bh) = 3.57 m  
thickness (bv) = 0.12 m

\*\*\*\*\* FINAL DESIGN ADVICE AND COMMENTS \*\*\*\*\*

REMINDER: The user must take note that HYDRODYNAMIC MODELING by any known  
technique is NOT AN EXACT SCIENCE.

Extensive comparison with field and laboratory data has shown that the  
CORMIX predictions on dilutions and concentrations (with associated  
plume geometries) are reliable for the majority of cases and are accurate  
to within about +-50% (standard deviation).

As a further safeguard, CORMIX will not give predictions whenever it judges  
the design configuration as highly complex and uncertain for prediction.

# KPDES



## KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM

# PERMIT

PERMIT NO.: KY0002747

AI NO.: 44199

### AUTHORIZATION TO DISCHARGE UNDER THE KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM

Pursuant to Authority in KRS 224,

Southwire Company Kentucky Plant  
1987 State Route 271 North  
Hawesville, Kentucky 42348

is authorized to discharge from a facility located at

Southwire Company Kentucky Plant  
1987 State Route 271 North  
Hawesville, Hancock County, Kentucky

to receiving waters named

Outfall 001 discharges to the Ohio River at mile point 727.

Outfall 002 is an internal outfall to 001.

in accordance with effluent limitations, monitoring requirements, and other conditions set forth in PARTS I, II, III, and IV. The permit consists of this cover sheet, and PART I 3 pages, PART II 1 page, PART III 2 pages, and PART IV 3 pages.

This permit shall become effective on

This permit and the authorization to discharge shall expire at midnight,

\_\_\_\_\_  
Date Signed

\_\_\_\_\_  
Sandra L. Gruzesky, Director  
Division of Water

DEPARTMENT FOR ENVIRONMENTAL PROTECTION

Division of Water, 200 Fair Oaks Lane, Frankfort, Kentucky 40601

Printed on Recycled Paper

A1. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the term of this permit, the permittee is authorized to discharge from Outfall serial number: 001 - Combined contact and non-contact cooling water (from Internal Outfall 002) and storm water runoff.

Such discharges shall be limited and monitored by the permittee as specified below:

| <u>EFFLUENT CHARACTERISTICS</u>       | <u>DISCHARGE LIMITATIONS</u> |                       |                 |               | <u>MONITORING REQUIREMENTS</u> |                |
|---------------------------------------|------------------------------|-----------------------|-----------------|---------------|--------------------------------|----------------|
|                                       | (lbs/day)                    | Other Units (Specify) |                 |               |                                |                |
|                                       | Monthly<br>Avg.              | Daily<br>Max.         | Monthly<br>Avg. | Daily<br>Max. | Measurement<br>Frequency       | Sample<br>Type |
| Flow (MGD)                            | N/A                          | N/A                   | Report          | Report        | 1/Month                        | Instantaneous  |
| Precipitation (inches)                | N/A                          | N/A                   | Report          | Report        | 1/Month                        | Grab           |
| Hardness (as mg/l CaCO <sub>3</sub> ) | N/A                          | N/A                   | Report          | Report        | 1/Month                        | Grab           |
| Total Suspended Solids (mg/l)         | N/A                          | N/A                   | 30              | 60            | 1/Month                        | Grab           |
| Oil & Grease (mg/l)                   | N/A                          | N/A                   | 10              | 15            | 1/Month                        | Grab           |
| Total Recoverable Metals (mg/l)       | N/A                          | N/A                   | Report          | Report        | 1/Quarter                      | Grab           |

The pH of the effluent shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored 1/Month by grab sample.

There shall be no discharge of floating solids or visible foam or sheen in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: nearest accessible point prior to discharge to or mixing with the receiving waters or wastestreams from other outfalls.

When reporting the precipitation amounts for this outfall, the permittee shall report the volume of precipitation which produced the discharge.

The term Total Recoverable Metals means those metals listed on Form C, Section V, Part C - Metals, Cyanide, and Total Phenols: Antimony, Arsenic, Beryllium, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Silver, Thallium, and Zinc.

Total Recoverable Metals shall be monitored once per quarter by grab sample. The results of the analyses shall be total and reported as a single concentration on the DMR. The laboratory bench sheets showing the results for each metal shall be attached to the DMR.

The abbreviation N/A means Not Applicable.



A2. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the term of this permit, the permittee is authorized to discharge from Outfall serial number: 002 - Combined contact and non-contact cooling water (Internal Outfall to 001).

Such discharges shall be limited and monitored by the permittee as specified below:

| <u>EFFLUENT CHARACTERISTICS</u> | <u>DISCHARGE LIMITATIONS</u> |                       |              |            | <u>MONITORING REQUIREMENTS</u> |                    |
|---------------------------------|------------------------------|-----------------------|--------------|------------|--------------------------------|--------------------|
|                                 | (lbs/day)                    | Other Units (Specify) |              |            | <u>Measurement Frequency</u>   | <u>Sample Type</u> |
|                                 | Monthly Avg.                 | Daily Max.            | Monthly Avg. | Daily Max. |                                |                    |
| Flow (MGD)                      | N/A                          | N/A                   | Report       | Report     | 1/Month                        | Instantaneous      |
| Temperature (°F)                | N/A                          | N/A                   | 95           | 100        | 1/Month                        | Grab               |
| Total Recoverable Chromium      | 0.038                        | 0.090                 | N/A          | N/A        | 1/Month                        | Grab               |
| Total Cyanide                   | 0.025                        | 0.060                 | N/A          | N/A        | 1/Month                        | Grab               |
| Total Recoverable Zinc          | 0.12                         | 0.30                  | N/A          | N/A        | 1/Month                        | Grab               |
| Total Recoverable Aluminum      | 0.66                         | 1.32                  | N/A          | N/A        | 1/Month                        | Grab               |
| Oil & Grease                    | 5.61                         | 9.35                  | N/A          | N/A        | 1/Month                        | Grab               |
| Total Suspended Solids          | 9.11                         | 19.18                 | N/A          | N/A        | 1/Month                        | Grab               |

The pH of the effluent shall not be less than 7.0 standard units nor greater than 10.0 standard units and shall be monitored 1/Month by grab sample.

There shall be no discharge of floating solids or visible foam or sheen in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: nearest accessible point prior to discharge to or mixing with the receiving waters or wastestreams from other outfalls.

The abbreviation N/A means Not Applicable.

B. Schedule of Compliance

The permittee shall achieve compliance with all requirements on the effective date of this permit or as specified by the permit.

DRAFT

**STANDARD CONDITIONS FOR KPDES PERMIT**

The permittee is also advised that all KPDES permit conditions in KPDES Regulation 401 KAR 5:065, Section 1 will apply to all discharges authorized by this permit.

This permit has been issued under the provisions of KRS Chapter 224 and regulations promulgated pursuant thereto. Issuance of this permit does not relieve the permittee from the responsibility of obtaining any other permits or licenses required by this Cabinet and other state, federal, and local agencies.

It is the responsibility of the permittee to demonstrate compliance with permit parameter limitations by utilization of sufficiently sensitive analytical methods.

### **PART III**

#### OTHER REQUIREMENTS

##### **A. Reporting of Monitoring Results**

Monitoring results obtained during each monitoring period must be reported on a preprinted Discharge Monitoring Report (DMR) Form that will be mailed to you. The completed DMR for each monitoring period must be sent to the Division of Water at the address listed below (with a copy to the appropriate Regional Office) postmarked no later than the 28th day of the month following the monitoring period for which monitoring results were obtained.

Division of Water  
Madisonville Regional Office  
625 Hospital Drive  
Madisonville, Kentucky 42431  
ATTN: Supervisor

Energy & Environment Cabinet  
Dept. for Environmental Protection  
Division of Water/SWP Branch  
200 Fair Oaks Lane  
Frankfort, Kentucky 40601

##### **B. Reopener Clause**

This permit shall be modified, or alternatively revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under 401 KAR 5:050 through 5:086, if the effluent standard or limitation so issued or approved:

1. Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
2. Controls any pollutant not limited in the permit.

The permit as modified or reissued under this paragraph shall also contain any other requirements of KRS Chapter 224 when applicable.

##### **C. Cooling Water Additives, FIFRA, and Mollusk Control**

The discharge of any product registered under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) in cooling water which ultimately may be released to the waters of the Commonwealth is prohibited, except Herbicides, unless specifically identified and authorized by the KPDES permit. In the event the permittee needs to use a biocide or chemical not previously reported for mollusk control or other purpose, the permittee shall submit sufficient information, a minimum of thirty (30) days prior to the commencement of use of said biocides or chemicals, to the Division of Water for review and establishment of appropriate control parameters. Such information requirements shall include:

1. Name and general composition of biocide or chemical,
2. Any and all aquatic organism toxicity data,
3. Quantities to be used,
4. Frequencies of use,
5. Proposed discharge concentrations, and
6. EPA registration number, if applicable.

D. Outfall Signage

The permittee shall post a permanent marker at all discharge locations and/or monitoring points. The marker shall be at least 2 feet by 2 feet in size and a minimum of 3 feet above ground level with the Permittee Name and KPDES permit and outfall numbers in 2 inch letters. For internal monitoring points the marker shall be of sufficient size to include the outfall number in 2 inch letters and shall be posted as near as possible to the actual sampling location.

E Mixing Zone

The assigned mixing zone for this discharge shall have the following dimensions:

|  |                            |
|--|----------------------------|
| Linear Distance from Point of Discharge: | 51.2 feet in any direction |
| Maximum Surface Area Involved:           | 2,058 square feet          |
| Volume of Receiving Water                | 1,300 cfs (840 MGD)        |

## PART IV

### BEST MANAGEMENT PRACTICES

#### SECTION A. GENERAL CONDITIONS

1. Applicability

These conditions apply to all permittees who use, manufacture, store, handle, or discharge any pollutant listed as: (1) toxic under Section 307(a)(1) of the Clean Water Act; (2) oil, as defined in Section 311(a)(1) of the Act; (3) any pollutant listed as hazardous under Section 311 of the Act; or (4) is defined as a pollutant pursuant to KRS 224.01-010(35) and who have ancillary manufacturing operations which could result in (1) the release of a hazardous substance, pollutant, or contaminant, or (2) an environmental emergency, as defined in KRS 224.01-400, as amended, or any regulation promulgated pursuant thereto (hereinafter, the "BMP pollutants"). These operations include material storage areas; plant site runoff; in-plant transfer, process and material handling areas; loading and unloading operations, and sludge and waste disposal areas.

2. BMP Plan

The permittee shall develop and implement a Best Management Practices (BMP) plan consistent with 401 KAR 5:065, Section 2(10) pursuant to KRS 224.70-110, which prevents or minimizes the potential for the release of "BMP pollutants" from ancillary activities through plant site runoff; spillage or leaks, sludge or waste disposal; or drainage from raw material storage. A Best Management Practices (BMP) plan will be prepared by the permittee unless the permittee can demonstrate through the submission of a BMP outline that the elements and intent of the BMP have been fulfilled through the use of existing plans such as the Spill Prevention Control and Countermeasure (SPCC) plans, contingency plans, and other applicable documents.

3. Implementation

If this is the first time for the BMP requirement, then the plan shall be developed and submitted to the Division of Water within 90 days of the effective date of the permit. Implementation shall be within 180 days of that submission. For permit renewals the plan in effect at the time of permit reissuance shall remain in effect. Modifications to the plan as a result of ineffectiveness or plan changes to the facility shall be submitted to the Division of Water and implemented as soon as possible.

4. General Requirements

The BMP plan shall:

- a. Be documented in narrative form, and shall include any necessary plot plans, drawings, or maps.
- b. Establish specific objectives for the control of toxic and hazardous pollutants.
  - (1) Each facility component or system shall be examined for its potential for causing a release of "BMP pollutants" due to equipment failure, improper operation, natural phenomena such as rain or snowfall, etc.

(2) Where experience indicates a reasonable potential for equipment failure (e.g., a tank overflow or leakage), natural condition (e.g., precipitation), or other circumstances which could result in a release of "BMP pollutants," the plan should include a prediction of the direction, rate of flow, and total quantity of the pollutants which could be released from the facility as result of each condition or circumstance.

- c. Establish specific Best Management Practices to meet the objectives identified under paragraph b of this section, addressing each component or system capable of causing a release of "BMP pollutants."
- d. Include any special conditions established in part b of this section.
- e. Be reviewed by plant engineering staff and the plant manager.

5. Specific Requirements

The plan shall be consistent with the general guidance contained in the publication entitled "NPDES Best Management Practices Guidance Document," and shall include the following baseline BMPs as a minimum.

- a. BMP Committee
- b. Reporting of BMP Incidents
- c. Risk Identification and Assessment
- d. Employee Training
- e. Inspections and Records
- f. Preventive Maintenance
- g. Good Housekeeping
- h. Materials Compatibility
- i. Security
- j. Materials Inventory

6. SPCC Plans

The BMP plan may reflect requirements for Spill Prevention Control and Countermeasure (SPCC) plans under Section 311 of the Act and 40 CFR Part 151, and may incorporate any part of such plans into the BMP plan by reference.

7. Hazardous Waste Management

The permittee shall assure the proper management of solid and hazardous waste in accordance with the regulations promulgated under the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1978 (RCRA) (40 U.S.C. 6901 et seq.) Management practices required under RCRA regulations shall be referenced in the BMP plan.

8. Documentation

The permittee shall maintain a description of the BMP plan at the facility and shall make the plan available upon request to NREPC personnel. Initial copies and modifications thereof shall be sent to the following addresses when required by Section 3:

Division of Water  
Madisonville Regional Office  
625 Hospital Drive  
Madisonville, Kentucky 42431  
ATTN: Supervisor

Energy & Environment Cabinet  
Dept. for Environmental Protection  
Division of Water/SWP Branch  
200 Fair Oaks Lane  
Frankfort, Kentucky 40601

9. BMP Plan Modification

The permittee shall amend the BMP plan whenever there is a change in the facility or change in the operation of the facility which materially increases the potential for the ancillary activities to result in the release of "BMP pollutants."

10. Modification for Ineffectiveness

If the BMP plan proves to be ineffective in achieving the general objective of preventing the release of "BMP pollutants," then the specific objectives and requirements under paragraphs b and c of Section 4, the permit, and/or the BMP plan shall be subject to modification to incorporate revised BMP requirements. If at any time following the issuance of this permit the BMP plan is found to be inadequate pursuant to a state or federal site inspection or plan review, the plan shall be modified to incorporate such changes necessary to resolve the concerns.

SECTION B. SPECIFIC CONDITIONS

Periodically Discharged Wastewaters Not Specifically Covered By Effluent Conditions

The permittee shall include in this BMP plan procedures and controls necessary for the handling of periodically discharged wastewaters such as intake screen backwash, meter calibration, fire protection, hydrostatic testing water, water associated with demolition projects, etc.